



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,482	07/21/2003	Kristy A. Campbell	M4065.0724/P724	4978
24998	7590	06/30/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			LANDAU, MATTHEW C	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2815	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

92

Office Action Summary	Application No. 10/622,482	Applicant(s) CAMPBELL, KRISTY A.	
	Examiner Matthew Landau	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-172 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-172 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Objections***

Claims 52 and 53 are objected to because of the following informalities: these claims are presently listed as "Withdrawn". Since the restriction requirement was withdrawn, no claims should be listed as withdrawn. If Applicant intended to cancel these claims they should be labeled "Cancelled".

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-88, and 112-129 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 76-87 of copending Application No. 10/819315. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is generally held that a broad, generic claim is unpatentable over a narrow, species claim. Regarding claim 76 of the instant application, it is considered that the second chalcogenide glass layer of claim 76 of 10/819315 is the claimed

Art Unit: 2815

diffusion control layer. Note that the various limitations of the dependent claims are merely obvious modifications of the cited application's claimed invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-172 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 30-137 of copending Application No. 10/120521 in view of Campbell et al. (US Pat. 6,813,178, hereinafter Campbell). Although the conflicting claims are not identical, the claims as a whole are not patentably distinct. For example, claim 30 of 10/120,521 recites all the limitations of claim 1 of the instant application except a silver layer adjacent the metal containing layer and in contact with the second glass layer. Figure 1b of Campbell discloses a silver layer 9 between a metal containing layer 6 and a second chalcogenide glass layer 8. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of 10/120521 by using the silver layer of Campbell for the purpose of limiting the Ag source for long-term temperature stability and endurance (col. 4, lines 61-63 of Campbell). Note that the various limitations of the dependent claims are merely obvious modifications of the cited application's claimed invention.

This is a provisional obviousness-type double patenting rejection.

Claims 130-147 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 60-70 of US Patent

Art Unit: 2815

6,867,996 in view of Campbell. Although the conflicting claims are not identical, the claims as a whole are not patentably distinct. For example, claim 60 of 6,867,996 recites all the limitations of claim 130 of the instant application except a silver layer adjacent the metal containing layer and in contact with the second glass layer. Figure 1b of Campbell discloses a silver layer 9 between a metal containing layer 6 and a second chalcogenide glass layer 8. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of claim 60 of 6,867,996 by using the silver layer of Campbell for the purpose of limiting the Ag source for long-term temperature stability and endurance (col. 4, lines 61-63 of Campbell. Note that the various limitations of the dependent claims are merely obvious modifications of the cited patent's claimed invention.

Claims 112-129 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 71-79 of copending Application No. 10/800707 in view of Campbell. Although the conflicting claims are not identical, the claims as a whole are not patentably distinct. Claim 71 of 10/800707 recites all the limitations of claim 112 of the instant application except a silver layer adjacent the metal containing layer and in contact with the second glass layer. Figure 1b of Campbell discloses a silver layer 9 between a metal containing layer 6 and a second chalcogenide glass layer 8. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of claim 71 of 10/800707 by using the silver layer of Campbell for the purpose of limiting the Ag source for long-term temperature stability and

Art Unit: 2815

endurance (col. 4, lines 61-63 of Campbell). Note that the various limitations of the dependent claims are merely obvious modifications of the cited application's claimed invention.

This is a provisional obviousness-type double patenting rejection.

Claims 1-56 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 23-34 of copending Application No. 10/410567 in view of Campbell. Although the conflicting claims are not identical, the claims as a whole are not patentably distinct. For example, claim 30 of 10/410567 recites all the limitations of claims 1 and 33 of the instant application except a silver layer adjacent the metal containing layer and in contact with the second glass layer. Figure 1b of Campbell discloses a silver layer 9 between a metal containing layer 6 and a second chalcogenide glass layer 8. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of claim 30 of 10/410567 by using the silver layer of Campbell for the purpose of limiting the Ag source for long-term temperature stability and endurance (col. 4, lines 61-63 of Campbell). Note that the various limitations of the dependent claims are merely obvious modifications of the cited application's claimed invention.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 9-11, 15-21, 23, 25-27, 29-31, 33, 34, 38-42, 46, 47, 49-55, 57-60, 64, 68, 70-74, 76-80, 84-87, 112-120, 124, 125, 127, 128, 130-135, 137, 139, 140, 144, and 145-147 are rejected under 35 U.S.C. 102(e) as being anticipated by Campbell.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1, 4, 5, 11, and 23, Figure 1b of Campbell discloses a resistance variable memory element comprising: a plurality of layers comprising: at least one chalcogenide glass layer 4, at least one metal-containing layer 6 (silver-selenide), at least one silver layer 9 provided adjacent to said metal-containing layer, and a second chalcogenide glass layer 8, said metal-containing layer and said silver layer being provided between said at least one chalcogenide glass layer and said at least one other glass layer. The limitation “for retaining stored data as a resistance value and for exhibiting a resistance change in response to an applied

Art Unit: 2815

programming voltage” is merely a recitation of intended use that does not structurally distinguish the claimed invention over the prior art.

Regarding claims 2 and 3, it considered that chalcogenide glass layers 4 and 8 each consist of two layers. Since glass layers 4 and 8 are amorphous, it can be considered that layers 4 and 8 each consist of two layers (upper and lower layers). This interpretation is based upon the fact that amorphous materials do not have distinct grain boundaries. Therefore, if an amorphous layer were deposited on top of another amorphous layer with the same composition, a cross sectional view of those two layers would be identical to that of one thick layer.

Regarding claims 4 and 5, Figure 1b of Campbell discloses said at least one metal-containing layer comprises silver-selenide (col. 5, lines 53-56).

Regarding claims 9 and 10, Campbell discloses said at least one chalcogenide glass layer 4 comprises a material having the stoichiometric formula $\text{Ge}_{40}\text{Se}_{60}$ (col. 4, lines 28-31).

Regarding claims 15, 25, and 26, Campbell discloses the other glass layer 8 contains Ge and Se (col. 5, lines 25-30). It is inherent that at least some silver will diffuse from silver layer 9 into layer 8.

Regarding claims 16, 17, and 27, Campbell discloses said at least one metal-containing layer 6 has a first thickness (600 angstroms) (col. 5, lines 15-17) and said at least one other glass layer 8 has a second thickness of 150 angstroms (col. 5, lines 32 and 33). Therefore, a thickness ratio of said first thickness to said second thickness is 4:1.

Regarding claims 18 and 19, Campbell discloses said at least one chalcogenide glass layer 4 has a thickness of 150 angstroms (col. 4, lines 33-35).

Art Unit: 2815

Regarding claims 20 and 21, Campbell discloses said at least one metal-containing layer 6 has a first thickness (600 angstroms) (col. 5, lines 15-17) and said at least one chalcogenide glass layer 4 has a second thickness (250 angstroms) (col. 4, lines 33-35). Therefore, a thickness ratio of said first thickness to said second thickness is 2.4:1.

Regarding claim 29, Campbell discloses said at least one metal containing layer 6 has a thickness (600 angstroms) (col. 5, line 17) larger than a thickness of each of said at least one chalcogenide glass layer and said at least one other glass layer (150 angstroms each) (col. 4, lines 33-35 and col. 5, lines 32-34).

Regarding claim 30, the product-by-process limitation "wherein said silver layer is an evaporated silver layer" does not structurally or patentably distinguish the claimed invention over the prior art.

Regarding claim 31, Campbell discloses the silver layer 9 has a thickness of 200 angstroms (col. 5, lines 57-59).

Regarding claims 33, 34, 38-40, and 57-60, 64, 76, 77, 79, 80, 112, 113, 116, 120, 130-132, 135, 140, and 145, Figure 1b of Campbell discloses a resistance variable memory element comprising: a plurality of layers comprising: a body, said body comprising a first chalcogenide glass layer 4 ($\text{Ge}_{40}\text{Se}_{60}$) (col. 4, lines 28-31) in contact with at least one silver-selenide layer 6, and at least one silver layer 9 in contact with said silver-chalcogenide layer, said silver layer being in contact with a second chalcogenide glass layer 8, wherein at least one of said first and second glass layers is formed of a chalcogenide glass material; and a first electrode 2 and a second electrode 10 in respective contact with said first and second glass layers. The limitation "for retaining stored data as a resistance value and for exhibiting a resistance change in response

Art Unit: 2815

to an applied programming voltage” is merely a recitation of intended use that does not structurally distinguish the claimed invention over the prior art. Regarding claims 64, 76, 77, 120, and 145, it is considered that the second glass layer 8 is a diffusion control layer. The limitation “for controlling diffusion of elements...” is merely a recitation of intended use that does not structurally/patentably distinguish the claimed invention over the prior art. Layer 8 of Campbell is capable of preventing diffusion. Regarding claim 112, Campbell also discloses a method of making the above device. Regarding claim 130, Figure 9 of Campbell discloses a processor 544; and a memory circuit 548, which includes the above memory element.

Regarding claims 41, 42, 46, 52, 53, 68, 71, 72, 84, 85, 114, 115, 118, 119, 124, 133, 134, 139, 144, and 134, Campbell discloses the first and second glass layers (4 and 8, respectively) comprise germanium and selenium (col. 4, lines 28-31 and col. 5, lines 25-30). It is inherent that at least some silver will diffuse from silver layer 9 into layer 8.

Regarding claim 47, Campbell discloses said silver-chalcogenide layer 6 has a first thickness (600 angstroms) (col. 5, lines 15-17) and said second glass layer 8 has a second thickness of 150 angstroms (col. 5, lines 32 and 33). Therefore, a thickness ratio of said first thickness to said second thickness is 4:1.

Regarding claims 49 and 50, Campbell discloses said silver-chalcogenide layer 6 has a first thickness (600 angstroms) (col. 5, lines 15-17) and said first glass layer 4 has a second thickness (250 angstroms) (col. 4, lines 33-35). Therefore, a thickness ratio of said first thickness to said second thickness is 2.4:1.

Regarding claims 51 and 125, Campbell discloses said silver-chalcogenide layer 6 has a thickness (600 angstroms) (col. 5, line 17) larger than a thickness of each of first and second

Art Unit: 2815

glass layers (4 and 8, respectively) (150 angstroms each) (col. 4, lines 33-35 and col. 5, lines 32-34).

Regarding claims 54, 73, 86, 127, and 146, the product-by-process limitation “wherein said silver layer is an evaporated silver layer” does not structurally or patentably distinguish the claimed invention over the prior art.

Regarding claims 55, 74, 87, 128, and 147, Campbell discloses the silver layer 9 has a thickness of 200 angstroms (col. 5, lines 57-59).

Regarding claims 70 and 137, it is considered that the chalcogenide glass layer 4 of Campbell consists of two layers. Since glass layer 4 is amorphous, it can be considered that layer 4 consists of two layers (upper and lower layers). This interpretation is based upon the fact that amorphous materials do not have distinct grain boundaries. Therefore, if an amorphous layer were deposited on top of another amorphous layer with the same composition, a cross sectional view of those two layers would be identical to that of one thick layer.

Regarding claim 78, Figure 1b of Campbell discloses a metal-containing electrode in contact with the diffusion control layer 8. The limitation “wherein said diffusion control layer slows migration...” is merely a recitation of intended use that does not structurally/patentably distinguish the claimed invention over the prior art.

Regarding claim 117, Figure 1b of Campbell discloses the layers of said chalcogenide glass material 4, said silver-selenide layer 6, and said silver layer 9 alternate with each other. Note that the claim does not specify that there must be more than one of each layer.

Art Unit: 2815

Claims 1-3, 9, 10, 15, 23, 25, 26, 30, 32, 130-135, 137, 139, and 144-146 are rejected under 35 U.S.C. 102(a) as being anticipated by Moore (US PGPub 2003/0038301).

Regarding claims 1 and 23, Figures 1-6 of Moore disclose a resistance variable memory element comprising: at least one chalcogenide glass layer 105, at least one metal-containing layer (W portion of 110), a silver layer (upper Ag portion of 110) provided adjacent to said metal-containing layer, and at least one other glass layer (a second chalcogenide glass layer) 129, said metal-containing layer and said silver layer being provided between said at least one chalcogenide glass layer and said at least one other glass layer. The limitation “for retaining stored data as a resistance value and for exhibiting a resistance change in response to an applied programming voltage” is merely a recitation of intended use that does not structurally distinguish the claimed invention over the prior art.

Regarding claims 2, 3, and 137, Moore discloses said at least one chalcogenide glass layer 105 and said other glass layer 129 comprise a plurality of chalcogenide glass layers. Since glass layers 105 and 129 are amorphous, it can be considered that layers 105 and 129 each consist of multiple layers. This interpretation is based upon the fact that amorphous materials do not have distinct grain boundaries. Therefore, if an amorphous layer were deposited on top of another amorphous layer with the same composition, a cross sectional view of those two layers would be identical to that of one thick layer.

Regarding claims 9, 10, 131, and 132, Figure 6 of Moore discloses said first chalcogenide glass layer 105 and said second chalcogenide glass layer 129 comprise a material having a formula Ge_3Se_7 . Note that Ge_3Se_7 is equivalent to $\text{Ge}_{30}\text{Se}_{70}$, which is considered to be “about” $\text{Ge}_{40}\text{Se}_{60}$.

Art Unit: 2815

Regarding claims 15 and 144, Figure 6 of Moore discloses said at least one other glass layer 129 comprises a combination of germanium, silver, and selenium.

Regarding claims 25, 26, and 139, Figure 6 of Moore discloses a chalcogenide glass layer 105 contains a metal dopant (Ag).

Regarding claims 30 and 146, the product-by-process limitation “wherein said silver layer is an evaporated silver layer” does not structurally or patentably distinguish the claimed invention over the prior art.

Regarding claim 32, Figure 6 of Moore discloses a second silver layer (lower Ag portion of 110) located on a side of said metal-containing layer (W portion of 110) opposite the side on which said at least one silver layer (upper Ag portion of 110) is located.

Regarding claims 130 and 135, Figure 8 of Moore discloses a processor 302 and a memory circuit 308 connected to said processor, said memory circuit including a resistance variable memory element. Figures 1-6 of Moore disclose a resistance variable memory element comprising at least one metal-containing layer (W portion of 110), at least one silver layer (upper Ag portion of 110) in contact with said at least one metal-containing layer, at least one chalcogenide glass layer 105, at least one other glass layer (a second chalcogenide glass layer) 129, said metal-containing layer and said silver layer being provided between said at least one chalcogenide glass layer and said at least one other layer. The limitation “for retaining stored data as a resistance value and for exhibiting a resistance change in response to an applied programming voltage” is merely a recitation of intended use that does not structurally distinguish the claimed invention over the prior art.

Regarding claims 133 and 134, Figure 6 of Moore discloses a glass layer 129 contains a metal dopant (Ag).

Regarding claim 145, it is considered that the second glass layer 129 of Moore is a diffusion control layer. The limitation "for controlling diffusion of elements..." is merely a recitation of intended use that does not structurally/patentably distinguish the claimed invention over the prior art. Layer 129 of Moore is capable of preventing diffusion.

Claims 1, 22, 130 and 138 are rejected under 35 U.S.C. 102(a) as being anticipated by Moore. The following rejections are based upon an alternate interpretation of Moore.

Regarding claim 1, Figures 1-6 of Moore disclose a resistance variable memory element comprising: at least one chalcogenide glass layer (lower portion of 105), at least one metal-containing layer (upper portion of 105), a silver layer (lower Ag portion of 110) provided adjacent to said metal-containing layer, and at least one other glass layer 129, said metal-containing layer and said silver layer being provided between said at least one chalcogenide glass layer and said at least one other glass layer. The limitation "for retaining stored data as a resistance value and for exhibiting a resistance change in response to an applied programming voltage" is merely a recitation of intended use that does not structurally distinguish the claimed invention over the prior art. Since glass layer 105 is amorphous, it can be considered that layer 105 consists of multiple layers. This interpretation is based upon the fact that amorphous materials do not have distinct grain boundaries. Therefore, if an amorphous layer were deposited on top of another amorphous layer with the same composition, a cross sectional view of those two layers would be identical to that of one thick layer. Note that this interpretation also applies to the rejection of claim 130.

Art Unit: 2815

Regarding claims 22 and 138, based on the above interpretation, it can be considered said metal-containing layer (upper portion of 105) comprises a plurality of stacked metal-containing layers.

Regarding claim 130, Figure 8 of Moore discloses a processor 302 and a memory circuit 308 connected to said processor, said memory circuit including a resistance variable memory element. Figures 1-6 of Moore disclose a resistance variable memory element comprising at least one metal-containing layer (upper portion of 105), at least one silver layer (lower Ag portion of 110) in contact with said at least one metal-containing layer, at least one chalcogenide glass layer (lower portion of 105), at least one other glass layer 129, said metal-containing layer and said silver layer being provided between said at least one chalcogenide glass layer and said at least one other layer. The limitation "for retaining stored data as a resistance value and for exhibiting a resistance change in response to an applied programming voltage" is merely a recitation of intended use that does not structurally distinguish the claimed invention over the prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-21, 27, 28, 31, and 147 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore (based on first interpretation).

Art Unit: 2815

Regarding claims 16 and 17, Moore does not disclose the other glass layer 129 has a thickness of 150 angstroms. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Moore by using a thickness of about 150 angstroms, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 18 and 19, Moore does not disclose the chalcogenide glass layer 105 has a thickness of 150 angstroms. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Moore by using a thickness of about 150 angstroms, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 20 and 21, it is inherent in the device of Moore that the metal-containing layer (W portion of 110) has a first thickness and said chalcogenide glass layer 105 has a second thickness. Moore does not disclose a thickness ratio of said first thickness to said second thickness is between about 3.3:1 to about 2:1. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Moore by using a thickness ratio of about 3.3:1 to about 2:1, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 27 and 28, it is inherent in the device of Moore that the metal-containing layer (W portion of 110) has a first thickness and said other glass layer 129 has a

Art Unit: 2815

second thickness. Moore does not disclose a thickness ratio of said first thickness to said second thickness is between about 3.3:1 to about 2:1. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Moore by using a thickness ratio of about 3.3:1 to about 2:1, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claims 31 and 147, Moore does not disclose the first and second silver layers each have a thickness of about 50-250 angstroms. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Moore by using a thickness of about 50-250 angstroms, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Response to Arguments

Applicant's arguments filed April 25, 2005 have been fully considered but they are not persuasive.

In response to Applicant's arguments regarding the double patenting rejection over 10/230201 (now Pat. 6,867,996) that "claim 89 of the '996 patent depends from claim 82, and recites "a resistance variable memory element comprising a PCRAM stack including amorphous semiconducting glass layers separated by a layer of silver-containing material", the examiner was referring to claim 89 of the application, not the patent (since the patent had not been issued). Therefore, Applicant's arguments are moot.

Applicant' argues that "Campbell fails to disclose a memory element comprising "a plurality of layers configured for retaining stored data as a resistance value and for exhibiting a resistance change in response to an applied programming voltage". However, this limitation is merely a recitation of intended use that does not structurally distinguish the claimed invention over Campbell. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963). Campbell has the same structure as claimed and is therefore inherently capable of performing the intended use by applying the appropriate voltages for the appropriate amount of time.

Applicant argues that "One can not consider the layers of two different memory cells in Moore as layers of the "memory cell" as claimed". It should be noted that claim 1 does not recite a "memory cell", but instead recites a memory element. The cited layers of Moore are part of a memory device. Therefore, there is no reason why the layers of Moore cannot be considered to make up a memory element, even if the cited layers are part of two different memory cells. It should also be noted that the limitation "A resistance variable memory element" appears in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural

Art Unit: 2815

limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Applicant further argues that “claim 1 recites two distinct glass layers, “at least one chalcogenide layer” and “at least one other glass layer”. Moore’s layer 105 is a chalcogenide glass layer, which reads on both of the above mentioned claimed layers. Therefore, the Examiner’s interpretation is valid.

Applicant further argues that Moore is not permitted to preclude patentability under 35 U.S.C. 103(a) due to common assignment. This is not valid since the rejection over Moore is a 102(a) rejection, not a 102(e) rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Art Unit: 2815

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should any questions arise regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Matthew C. Landau


TOM THOMAS
SUPERVISORY PATENT EXAMINER

Examiner

June 28, 2005